

Information Utilization among Rural Fish Farmers in Central Agricultural Zone of Delta State, Nigeria

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Abstract: The study was conducted to assess the utilization of information on fish farming techniques by rural fish farmers in the Central Agricultural Zone of Delta State, Nigeria. Problem of low productivity in culture fisheries persists, though there are improved packages on fish production, it is suspected that they are not adequately used by farmers. The utilization of information on fish farming technologies among farmers will always translate into efficiency in fish production and have increased productivity. The study will guide extension services in the design of fish farming messages (information) for better understanding and efficient utilization by the fish farmers. For the study, a sample size of 120 rural fish farmers was used. Data were collected with the use of structured interview schedule and analysed with the application of descriptive statistics, while the hypothesis were tested by the use of chi – square. Information used ranged from stocking rate to preservation technique. The sources of these information included extension agents, other farmers, fish farmers' groups, university, research institutes and NGOs. The need gap of the farmers include the ones related to those already known to and were being used by them. There were significant relationship between information utilization and fish farmers' demographic characteristics. Significant relationship also exist between sources of information utilization. It was recommended that extension agents should intensify their efforts in teaching farmers how to utilize the complex information among others.

Key words: Information • Utilization • Rural • Fish • Farmers • Central agricultural zone • Extension

INTRODUCTION

Information is an indispensable factors in the practice of farming and it is the basis of extension service delivery. It is defined by Adereti *et al.* [1] as data that have been put into a meaningful and useful context which is communicated to recipient who uses it to make decisions [2]. opined that information can also be described as power which an individual in every society should have easy access to.

Agricultural information, as suggested by Agbamu, [3] is defined as all published or unpublished knowledge in all aspects of agriculture. He classified agricultural information into four categories namely, technical, commercial, socio-cultural and legal information. Fish farming information can be considered as all published or unpublished knowledge in all aspects of culture fish production.

The quality of information rests solidly on three pillars which are, accuracy, timeliness and relevance [1]. stated accuracy implies that information is free from bias; timeliness means that recipients can get information when they need it, while relevance implies weather the piece of information specifically answers the users' question of what, why, when, who and how? An individual consciously or unconsciously engages in information search in order to find appropriate information which can fill the information gap there by regaining physiological and psychological balance.

Access to adequate information is very essential to increased agricultural productivity [4]. The information on fish farming or fish farming technologies needed for farmers cover pond construction and management, breeds and spawning, fish processing's storage, marketing, etc.

The importance of fish in human nutrition as a major source of protein cannot be over emphasized as it touches

the lives of a large percentage of the population of the world. As population increases, the demand for fish and fish products increases, especially with its nutritional advantage over meat. This calls for improved fish farming technologies and other information needed for improved production level.

However, in spite of research and extension services efforts, [1] stated that there are improved packages on agricultural production, they are not being adequately used by farmers.

All these information on fish farming techniques, when acquired and effectively utilized by the fish farmers, will help to increase culture fish production and translate into income, improved farmers' standard of living improvement in rural and by extension, the nation's economy.

Objectives of the Study: The major objective of study was to assess the utilization of information on fish farming techniques by framers in the Central Agricultural Zone of Delta State, Nigeria.

Specifically, the Study Was Aimed At:

- Identify the demographic characteristics of fish farmers in the study area;
- Identify the sources of the various information on fish farmers techniques and types available to the farmers;
- Ascertaining the level of adoption of the information on fish farming techniques among farmers;
- Identifying information access constraints faced by farmers.
- Ascertain the problems faced by farmers in the course of fish farming information usage.

Hypotheses: The following hypothesis were tested for the study:

H₀₁: There is no significant relationship between demographic characteristics of fish farmers and information utilization.

H₀₂: There is no significant relationship between information sources and information utilization among fish farmers.

MATERIALS AND METHOD

The study was conducted in the Central Agricultural Zone of Delta State, Nigeria. This is one of the three agricultural zones as demarcated by the Delta State

Agricultural Development Programme. It is constituted by eight local government areas-Ethiope East and west,Ughelli North and south, Okpe, Sapele, Uwie and Udu Local Government Areas.

It lies in the Fresh Water and Rain Forest Belts. The climatic and soil physical and chemical conditions encourage fish farming.

Multi-stage sampling was applied in the study. Four local government areas were randomly selected from the eight local government areas that constitute the study area. Three rural communities were randomly selected from of each of the four local government areas. Ten fish farmers were then selected purposively from each rural community selected to give a total of 120 respondents.

Data were collected with the use of interview schedule from the selected respondents. The interview schedules were personally administered by the researchers.

Data were analysed using descriptive statistics such as frequency counts and percentages. Inferential statistics-Chi-Square (X^2) was used to test the hypotheses.

RESULTS AND DISCUSSION

Demographic Characteristic of Respondents: Table 1 indicates that majority (68.3%) of the fish farmers were in the age bracket of 41-50 years, while 22.5% were on the age bracket of 31-40 years. This implies that most of the fish farmers were between the ages of 31-50 years. This indicates that very few young and old people are involved in fish farming. This is because fish farming requires adequate attention and a lot of sense of responsibility. The young people in the rural communities mostly pursuing tertiary education between the ages of 20-30 years and pay much attention to their studies that they have little or no time for other serious activities, people above the age of 50 were few in fish farming because they lack adequate stamina required in the management of fish farms.

Males (93.3%) dominate fish farming. The male dominance of this rural source of livelihood implies the laborious nature of fish farming operations right from pond construction to management which their female counterparts cannot easily undertake.

Majority (70.8%) of the respondents had one form of tertiary education or the other, while 23.3% and 5.0% had secondary and primary education respectively. Just 0.83% had no formal education.

Table 1: Demographic Characteristics of Fish Farmers

Variables	Frequency	Percentage (%)
Age (years)		
Below 20	0	0.0
20-30	8	7.7
31-40	27	22.5
41-50	82	68.3
Above 50	3	2.5
Gender		
Male	112	93.3
Female	8	6.7
Level of Education		
No formal education	1	0.83
Primary education	6	5.0
Secondary education	28	23.3
Tertiary education	85	70.8
Fish farming experience (years)		
< 5	55	46.0
5-10	40	33.3
11-15	12	10.0
16-20	8	6.7
Farm Size (ha)		
Less than 1	62	51.7
1-2	45	37.5
3-4	9	7.5
Larger than	4	43.3
Membership of social group		
Cooperative society	63	53.0
Fish Farmers Association	41	34.0
Essusu (monthly contributed)	11	9.0
None	5	4.0

Source: Field Survey, 2007

This means that fish farming is dominated by the educated class and mostly by those armed with tertiary education. This is so because fish farming requires a lot of technical and scientific knowledge to be successfully undertake. The information on the innovations of fish farming somehow complex and these need some high level of education of comprehend.

As for fish farming experience, 46% of the respondents had been involved in fish farming for less than 5 years; 33.3% for 5-10 years; 10% for 11-15 years; 6.7% for 16-20 years and 3.2% for more than 20 years.

This connotes that fish farming or culture fishery diffused very slowly among the farmers in the Central Agricultural Zone of Delta State. The situation is attributed to the presence of many fresh and estuarine water sources such as rivers and streams and natural ponds that mainly supplied fish for the people of the area.

Most (51.7%) of the fish farmers had farms of sizes ranging between less than 1 and 2 hectares. Those whose farm sizes were less than 1 hectare were among the new entrants into fish farming business, thus, they were regarded as small scale fish farmers. The others whose farm sizes ranged between 1 hectare and larger than 4 hectares were those who had some good number of years of experience and had gradually expanded their farm sizes for some number of years as they made profit. They were motivated to expand for more profit as human wants are insatiable.

Majority of the fish farmers (53%) subscribed to cooperative societies; while 34% held membership of Fish Farmers' Association. Those engaged in monthly contribution (Esusu) constituted 9.% of the respondents, while 4.% of them did not subscribe to any social group. Those that subscribed to cooperative societies did so mainly to have access to credit [5] discovered that fish farmers participated in cooperative societies mainly to have access to credit, input and aids from government and extension services. Those involved in Fish Farmers' Association did so because of easy access to extension services, market and credit facilities. This is in consonance with [6], who stated that when Fish Farmers Association was Formed in Lagos State and fish farmers got wind of it, they joined on hearing about the results achieved by members, mostly in terms of the associations link to markets, credit facilities and extension services..

Information Variables

Information Needs: As indicate by the respondents, 79.2% and 54.2% of them needed more information on feed formulation and ecological disaster management and prevention. Other information needed by the farmer included water treatment (38%), market information (38%), spawning operation (29.2%) and preservation technique (21%). This implies that fish farmers in the study area still had high information needs in order to improve and increase their production level.

Information Utilization: Table 2 indicates that 90% of the fish farmers utilized information on all fish farming operation; while 10% did not. Of the 90% that used information on stocking operation, 32.3% always used it, 31.7% often and 25% seldom utilized it.

As for water treatment, 57% always, 25% often and 8.3% seldom used such information.

Table 2: Information Utilization among Fish Farmers

Information	Information Usage		Frequency of Usage		
	Yes	No	Always	Often	Seldom
Stocking operation	108(90.0)	12(10.0)	40(32.3)	38(31.7)	30(25%)
Water treatment	108(90.0)	12(10.0)	68(57)	30(25)	10(8.3)
Ecological disaster					
Management/prevention	108(90.0)	12(10.0)	72(60)	33(28)	3(3)
Feed formulation techn.	108(90.0)	12(10.0)	85(71)	20(17)	3(3)
Feeding operation	108(90.0)	12(10.0)	108(90.0)	0(0)	0(0)
Spawning operation	108(90.0)	12(10.0)	72(60)	3(3)	33(28)
Market information	108(90.0)	12(10.0)	108(90)	0(0)	0(0)
Preservation techniques	108(90.0)	12(10.0)	33(28)	30(25)	45(38.0)

Source: Field Survey, 2007

Figures in Parenthesis Are Percentages: Ecological disaster management/prevention information were always (60%); often (28%) and seldom (3%) used by the farmers. All the 90% of the farmers that applied did so.

Spawning operations information were always (60%) often (3%) and seldomly (28) used by the farmers. Information on feed formulation were always (71%); often (17%) and seldomly (3%) utilized by them. All the 90% of them that utilized market information always did so while 28% (always), 25% (often) and 38% (seldom) used information on fish preservation.

The above result implies that the 10% of the fish farmers who did not use any of the information were those who are conservative and rear their fish in family ponds that had been existing for so long and they leave the fish to fend for themselves. This is the traditional method of fish farming in the study area, especially they mainly operate the earth pond. The implication is that these farmers need very much extension agents attention.

Information Sources: The responses indicated that 86%, 70% and 70% of the fish farmers get information on fish farming through farmers' groups, other farmers and Non-governmental organizations (NGOs) respectively. Very few (10%) access information through research institutes and another handful (10%) through universities, while 45% access information through extension agents (there were multiple responses).

This implies that research institutes and universities have not put in enough efforts to carry out their function of information generation and delivery to farmers.

Extensions agents meet some members of the farmers' groups who then pass on the information to the

others in the groups who are absent during meeting. Extension agents meet the farmers in the groups for group meetings or workshop.

Giving farming access to a variety of information sources, which are accessible, affordable, relevant and reliable is the ultimate aim of providing agricultural information services [7]. This is the non of the farmers indicated print and electronic media as sources of information. These sources are not readily affordable, reliable, or reliable in the rural communities.

Constraints to Information Accessibility: The greatest constraint to access to information by fish farmers included inadequate extension contact (33.3%), ineffective communication (29%), distance from other farmers (25%) and illiteracy (13%).

Communication, is ineffective because most of the time, farmers find it difficult to comprehend information they get through an intermediary. Noise is always there when such information is disseminated by an intermediary among the garget groups. The use of contact farmers is charactized by message distortion [3]. Some farmers are disadvantaged by distance from others find themselves in such a situation which makes it difficult for them to have easy access to information. Owing to illiteracy some of the farmers cannot read and only understand the local language. extension contact is poor because the ratio of extension agents to farmers is far from adequate.

Test of Hypotheses:

H₀₁: There is no significant relationship between the demographic characteristics of fish farmers and information utilization.

Finding: The result (Table 3) indicates that the age ($X^2_{cal} = 30.65$), gender ($X^2_{cal} = 15.23$), level of education ($X^2_{cal} = 46.83$) farming experience ($X^2_{cal} = 19.84$), farm size ($X^2_{cal} = 51.61$) and group membership ($X^2_{cal} = 86.87$) have significant relationship with information utilization among fish farming's at 0.05 level of significance as the calculated X^2 values are greater than the tabulated X^2 values.

Age is related to information utilization because the stage of life of farmers affects his attitude towards information usage. The older fish farmer becomes, the more he is willing to put fish farming related information into use. This is more so when a lot of retired people in the educated class in our rural communities retire into fish farming. This does not agree with [8] who stated that the older one become, the more risk averse he is.

The significant relationship between gender and information utilization is due to the fact that most of the fish farming operations are the gender roles of men and men are more risk taking than women nature. The gender related roles of men mostly in fish farm operations also account for the male dominance in fish farming.

The level of formal education of fish farmers has significant relationship with information utilization by them because educational level influences information utilization. The higher the educational level of the fish farmers, the more they are willing to use information provided on fish production. This is congruent with [9] who discovered that the level of formal education was positively correlated with adoption of improved cassava production technology. This is also in consonance with [8] as they noted that technological change is achieved through formal education.

Farming experiences has a significant relationship with information utilization among the farmers for the fact that farmers' behaviour is in accordance with the old adage which says "experience is the best teacher". With years of farming the fish farmers learn from their various past experiences and experience must have taught them about the benefits of information utilization.

Farm size has significant relationship with information utilization among fish farmers as the larger the farm sizes, the more improved fish farming production information large farm sizes use more of improved technologies than farmer with smaller farm size. This agrees with [4] who stated that farmers with smaller sizes.

Table 3: Relationship between Demographic Characteristics of Fish Farmers and Information Utilization

Variable	df	X^2 calculated	X^2 tabulated	Decision
Age	4	30.65	9.49	S
Gender	1	15.23	3.84	S
Level of education	4	46.83	9.49	S
Farm experience	4	19.84	9.49	S
Farm size	3	51.61	7.81	S
Group membership	3	86.87	7.81	S

$P < 0.05$ S – Significant

Table 4: Relationship between Information Sources and information utilization

Variable	df	X^2 calculated	X^2 tabulated	Decision
Extension Agents	1	6.71	3.84	S
Farmers' groups	1	20.51	3.84	S
Other farmers	1	10.35	3.84	S
University	1	5.72	3.84	S
Research institutes	1	3.51	3.84	N.S
NGOs	1	1.91	3.84	N.S

$P < 0.05$ S – Significant N.S – Not significant

Group membership is significantly related with information usage for the fact that through farmers' groups, farmers influence each other. This is more so when they share their experience with each other. This corroborates the statements of [10] and [11], who observed that social participation has positive and significant relationship with adoption.

H₀₂: There is no significant relationship between information sources and information utilization.

The Chi – Square calculated values for extension agents ($X^2_{cal} = 6.71$), farmers' groups ($X^2_{cal} = 20.51$), other farmers ($X^2_{cal} = 10.35$) and University ($X^2_{cal} = 5.71$) are greater than the tabulated value of 3.84 ($X^2_{tab} = 3.84$) at $df = 1$ and 0.05 level of significance. The null hypothesis is therefore rejected. There is significant relationship between information utilization and information sources such as extension agents, farmers' groups, other farmers and University. There is, however, no significant relationship between research institutes ($X^2_{cal} = 3.51$) and NGOs ($X^2_{cal} = 1.91$) as information farmers.

The significant relationship between extension agent, as a source of information and information utilization is attributed to the trust they have on the extension agents covering the study area. The implication is that the extension agents deliver information to the fish farmers in a practical and have built trust with the farmers. The trust

the farmers have in the extension agents is borne out of previous information from the extension which they tried and found working of adoption. [4] discovered that farmers rated extension agent as a source of information high in an earlier study. According to [12], a number of development in many developing countries in recent times are shaping the future of extension services and are setting the stage for the adoption of information.

Farmers' groups, as a source of information also significantly related with information usage because farmers are better reached in groups as each of these group are constituted by farm members who have identical problems. In these groups, farmers also exchange ideas, information and experiences. According to [6], fish farming was successfully promoted, but after some time, fish farmers realized that they were at a disadvantage when extension services and prices were set by middlemen. They further mentioned that the situation mentioned above led to the formation of Lagos State Fish Farmers' Association which had since been benefiting small scale farmers as well as other stake holders with each other in groups.

Other farmers or fellow farmers who do not subscribe to the farmers' group, as a sources on information also has significant relationship with information utilization because fish farmers relate better with each other and exchange visits to their respective farms where they get informed orally and by observations. They identify with each other and are able to trust each other than they do with others in the society.

The university as a source of information on fish farming information usage, owing to the fact that the state university (Delta State University) through her investment outfit supply these have been found satisfactory by the fish farmers.

Research institutes and NGOs have no significant relationship with information institute and Nills that have fisheries development as mandate

CONCLUSION

Considering the results the study, it is concluded that the respondent us the information on stocking operation, water treatment, ecological disaster management/prevention, feed formulation technology, feeding operation, market information and preservation technology. There is still need of gaps in formation technology and disaster management/control. The farmers still do not us information on the buoyancy quality like the ones formulated by animal feed manufacturers. This is because they do not understand the technology yet.

The information on the ecological disaster management/control has not be followed because farmers always forget the topography and nature of the land and soil respectively when constructing their ponds. Other areas of need gaps include water treatment and market information. This is most common among the farmers who do not subscribe to farmers groups.

The demographic characteristics of the fish farmers influence their adoption of improved fish farming technologies just as the source of the information on the improved fish farming technology influence the usage of these information.

Conclusively though the situation is as it is above, as earlier revealed by the results of the study, the level of information utilization among fish farmers is satisfactory.

Recommendations: In view of the findings, it is therefore recommended that:

- Extension agency should encourage all fish farmers to subscribe to the various fish farmers groups that abound in the state. This will make information easily accessible to them.
- An out station of the institute of fresh water fisheries research should be established in the state.
- Extension agent should intensify their effort so as to spend much time to teach farmers on the areas of needs above.
- Other method such as mass media should be used regularly to disseminate information to fish farmers.

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